

**EVALUATION OF THE ENHANCED 911 SYSTEM
IN THE STATE OF NEW HAMPSHIRE**

ADVANCED LEADERSHIP ISSUES IN EMS

By : Jeffrey M. Brown

Deputy Chief

Seabrook Fire Department

Seabrook NH

An applied research project submitted to the National Fire Academy as part of the
Executive Fire Officer Program

November 1998

ABSTRACT

This research project analyzed the current operations of the New Hampshire enhanced 911 system as compared to the original design concept. The purpose of the project was to determine if the current system is operating in accordance with the original concept, and if not, to recommend changes to the system.

This research employed both historical and evaluative research to (a) determine if the system is in compliance with the original concept which established the program, (b) assess whether the system is operating in compliance with state law, (c) evaluate whether public safety officials in the state are familiar with and agreeable to the current operations of the system, and (d) recommend changes in a historical context to correct any areas of dispute.

The major findings of this research were that the current operations of the E-911 system in New Hampshire do not comply with the original plans for the system, and are contrary to the state law. In addition, public safety officials throughout the state have negative opinions towards the E-911 system.

The recommendations resulting from this project included (a) that the E-911 system follow state law and cease call coding and medical dispatch functions, (b) the system should provide automatic addressing information to local dispatch centers, (c) the system should begin a communications process with public safety officials to reach consensus on the operation of the E-911 system, and (d) to propose administrative rules within the state law to outline the operations of the system.

TABLE OF CONTENTS

Abstract.....	2
Introduction.....	4
Background and Significance.....	6
Literature Review.....	8
Procedures.....	12
Results.....	14
Discussion.....	17
Recommendations.....	19
Reference List.....	20
Appendix A.....	A-1

INTRODUCTION

In 1991, the New Hampshire Legislature created a study committee to investigate the possibility of establishing an enhanced 911 system in the state. This committee had the responsibility of investigating all aspects of the E-911 system, and to report back with recommendations.

This committee met and promulgated a document entitled *NH Enhanced 911 Technical Report*. This document was used as guidance by the legislature and others when the Enhanced 911 system Act (NH Revised Statute Annotated [RSA] 106-H) was drafted and passed in 1992.

This act established the administration and funding for the enhanced 911 system in New Hampshire. The technical committee report (1992) was to be used as guidance for the system establishment and operations. This law includes the establishment of an advisory board, funding mechanism, and overall 911 system administration as a state agency. The legislative intent of this system is stated in RSA 106-H:1 and states:

“The General Court of the State of New Hampshire declares that the interest of the state’s citizens will be served by a coordinated statewide enhanced 911 system, utilizing 911 as the primary emergency telephone number.”

The problem which prompted this research project is that the enhanced 911 system within the state has seemed to transform from what was intended.

In addition, to evaluate whether the system in existence today is what the legislature and public safety officials envisioned when the system was established six years ago.

The purpose of this research was to analyze the current state of the enhanced 911 system in New Hampshire as compared to the original guiding document (E-911 Technical Report, 1992), state statute (RSA 106-H), and vision of public safety officials. In conducting this research, historical and evaluative research methods were used to answer the following questions :

1. Is the enhanced 911 system in New Hampshire operating in accordance with the technical committee report ?
2. Is the enhanced 911 system in New Hampshire operating in accordance with state law?
3. Are public safety officials familiar with and in agreement with the current state of the enhanced 911 system?
4. Are there any changes that could be made to the current system?

BACKGROUND AND SIGNIFICANCE

The process of providing enhanced 911 capability began in New Hampshire in 1991. During this time, the theory that E-911 would prove beneficial to the public was accepted by the legislature. Given the political climate and operational specifics of each public safety agency, a study committee was formed to investigate how enhanced 911 would be provided to the citizens of New Hampshire.

The committee paid particular attention to the operational concerns of public safety agencies throughout the state. This committee decided that to serve the public in a cost effective manner, that only one central location would be used to answer 911 calls. These calls would then be immediately transferred, without intervention, to the local emergency response agency (E-911 Technical Report, 1992). This proposal was accepted by public safety officials as well as the legislature.

The technical committee also reported that “turf” issues would be avoided because the 911 center would not function as a dispatch center. In 1997, the state Bureau of Emergency Communications, which operates the E-911 system, began a process by which they would begin coding emergency calls. This plan was specific towards emergency medical calls and emergency medical dispatch (EMD).

The call coding concept is based upon a continuum of care as part of an overall EMS system. Call coding is part of an overall emergency medical dispatch operation in which resources are dispatch depending upon the level of care required (Zeller/Yameen, 1992).

The concept and operations take place within the overall guidelines of the local emergency medical care system.

The evolution of the New Hampshire E-911 system presents a problem for the fire service in this state. Autonomous dispatch centers and operations must now rely on a centralized dispatch agency on all 911 medical calls. This presents a challenge to fire agencies that may include changes to operations as well as liability exposure.

Due to this change, and the possible impact upon the fire service agencies within the State of New Hampshire, this research project analyzed the current state of the E-911 system. Impacts, if any, are noted and discussed. This issue is of paramount importance to agencies within the state. The issue is relevant to the Advanced Leadership Issues in Emergency Medical Services course in that the enhanced 911 system is the key issue among fire service personnel and executives of New Hampshire at this point in time. Evaluation of the current 911 system presents leadership issues that are at times complex but are easily identified and dealt with due to information gained in the course.

LITERATURE REVIEW

The literature review provided important background information related to the general concepts of enhanced 911 and medical dispatch. Specific information was found relating to the proposal for the establishment of an E-911 system in New Hampshire as well as the programs current operations.

Enhanced 911

Enhanced 911 is an operation by which a universally recognized number (911) can be used to summon emergency services via telephone. The enhanced feature is that address and other information is displayed on a screen in the call taking area without assistance from the caller. This information is helpful in that it can point out the location of the caller, even when the person is unable to speak (Holt,1991).

In 1989, Rhode Island became the first state to incorporate enhanced 911 on a statewide basis. The system was established to assist police, fire, and EMS agencies, not to replace any of their operations, according to Director Glenn Parillo (Holt, 1990). The Rhode Island system has a single answering point whereby emergency calls are transferred to local agencies. No dispatching operations are performed from this location. This unique characteristic helped to sell the program as well as ensure it's success (Holt,1990). The enhanced number (911) increased speed, while dispatch policy resides with the local community, according to Holt (1990).

A primary consideration when planning an enhanced 911 system is whether or not to make it part of the overall dispatch program. The more E-911 departs from being a name and address data file, the more it becomes incorporated into computer aided dispatch (CAD). CAD systems are an integral part of an overall information management system. Local dispatching can be enhanced when the capability of E-911 and CAD are joined at the dispatch center (Morentz,1994).

New Hampshire Enhanced 911

In 1991, the New Hampshire legislature created a study committee to review the feasibility of a statewide E-911 system. This committee consisted of representatives of public safety agencies, as well as technical experts from various telephone companies and agencies. This committee prepared a document for presentation to the legislature and others that would be used as a guide to establish the E-911 system in the state (E-911 Technical Report,1992).

The technical report included relevant information related to the feasibility of establishing an enhanced 911 system on a statewide basis. The committee decided to use Rhode Island as a model as their system was the only statewide one in the country. According to the technical report, the Rhode Island system was desirable in a number of ways. These included the fact that local control issues were minimized since the answering point did not act as a dispatch center, and the 911 operator stays on the phone but does not intervene unless directed (E-911 Technical Report, 1992).

The technical report (1992) and members of the committee recognized that jurisdictions differed in the way services are dispatched and deployed. Accordingly, the committee felt that the statewide system should act only as a relay point and not a dispatch center (E-911 Technical Report,1992).

The recommendations of the technical committee were presented to the legislature, who in turn enacted the E-911 statute . This new statute (RSA 106-H) defines the system as an answering point and transfer mechanism for emergency calls within the state (RSA-106-H:2,1992). Any changes made to the system would also have to go through the rule making process as provided for in the law (RSA 106-H:7,1992). According to the technical report (1992), all aspects of the system would be designed and maintained in accordance with the committee recommendations as presented to the legislature. These recommendations included technical as well as operational aspects of the system. A key component to the system as well as the statute was that the state would provide monitoring screens to all dispatch centers in the state to show real time information about the call. This information would be transferred at the same time as the call .

In 1997, the New Hampshire Bureau of Emergency Communications began implementation of a call coding system for all 911 medical calls. This system works by having 911 employees determine the type of call and relaying response codes to the local dispatch center (Klunk, December 2 1997). Call coding is a part of an overall emergency medical dispatch system by which calls are given designations based on severity.

The system should be part of an overall operational program within a given agency for medical responses (Clawson/Martin, 1995).

Fire chiefs and other public safety officials throughout the State of New Hampshire are opposed to the new program. According to these officials, local control is paramount to the success of an EMS system (Klunk, December 4, 1997). Jeff Clawson, who is regarded by some as the foremost expert on emergency medical dispatch (EMD), states that before a call coding system can be established, each local situation must be studied and planned for. He further states that medical control from the local controlling hospital is mandatory (Clawson/Hauert, 1995).

Summary

The literature review was used to determine the historical context of the current enhanced 911 system. Relevant information regarding the concept of E-911 as well as specific information regarding statewide systems was evaluated. Recent developments in the New Hampshire system have changed the system from what was originally proposed. These developments were discovered via the newspaper, and not from any communications from the state E-911 agency. Many in the public safety field found out about these changes in the same manner.

PROCEDURES

The purpose of this research project was to evaluate the current enhanced 911 system in New Hampshire as compared to the original conception of the program. The research was historical research in that the literature review was conducted to explain the proposed E-911 system from planning to inception. Literature dealing with enhanced 911 systems generally, and statewide systems in particular proved to provide the foundation for the project. The literature review was also used to describe the current state of the enhanced 911 system.

The research was evaluative research in that information gathered through historical research was compared and applied towards the current state of the enhanced 911 system in New Hampshire. Of most importance was the comparison between what was originally envisioned and the current state of operations. To gauge the sentiments of the public safety community, a survey instrument was developed and disseminated.

The survey (Appendix A) was developed to address key concerns among those in the public safety field as well as to evaluate the current condition of the E-911 system in the historical context of its initial development. The survey was disseminated to 100 fire and police officials throughout the State of New Hampshire. The individuals were chosen based upon their responsibilities for emergency response as well as dispatching.

Assumptions and Limitations

The most important assumption is that literature related to emergency medical dispatch and 911 systems applies generally to the New Hampshire system.

While New Hampshire has a statewide system (one of only three in the country) it does not operate in the same manner as the other systems. This fact proved to limit the amount of information that could be used in the literature review. No relevant information could be found that addresses the specific guidelines found in New Hampshire. Therefore, general information related to 911 systems and medical dispatch was used.

The technical committee report (1992) was used as a basis because it was the only guiding document used to develop the 911 system in New Hampshire. This limitation caused the research project to be guided by this report as well as the survey.

RESULTS

A survey (Appendix A) was conducted to gauge the public safety sentiment towards the current 911 system. The results of this survey are included in the following questions.

Answers to Research Questions

. Research question 1. The technical committee report (1992) was used as a guiding document to organize and operate the enhanced 911 system in New Hampshire. This document outlines specific actions to be avoided as well as to be taken. This report includes provisions for local control, which ensured that only one public safety answering point would be needed because no dispatching would take place at the state level.

Further, any changes that occurred within the system would have to take place within the rule making system outlined in the law (RSA 106-H:7). After historical research, evaluation shows that the current system of call coding and emergency medical dispatch directly contradicts the technical committee report as well as the state statute. Survey results show that a majority of the public safety officials do not agree with these current operations.

Research question 2. The current operations of the enhanced 911 system are dictated by state law. The statute (RSA 106-H) outlines general requirements for the administration and operation of the system. Specific requirements related to the type of operations, personnel, and administration shall be made via the rule making process outlined in the law (RSA 106-H:7). To date, there are no administrative rules enacted.

In addition, automatic numbering identification systems and address indicators were supposed to be disseminated to local dispatch centers. This dispersal is required under the statute (RSA 106-H:11). To date, none of these systems have been issued.

Research showed that the system, especially call coding and medical dispatch, is operating contrary to the state statute. No rules have been promulgated as required dictating the type of operations that will be conducted.

Research question 3. Public safety officials within the state are divided as to their knowledge and perception of the E-911 system. The survey prepared for this research project shows that 79% of those responding are familiar with the original design of the system, while 66% are familiar with the current operations. 58% of those officials do not feel that the current operations match the original concept and design of the system.

Certain operations cause concern among the public safety officials, these include an expanded dispatch function as well as lack of communication from the administrators of the E-911 system. A clear majority of public safety officials in New Hampshire are in disagreement with the current operations of the system, while still feeling that the concept of E-911 is good (Appendix A).

Research question 4. Evaluation through historical research and the survey shows that productive changes can be made to the system. The survey (Appendix A) shows that public safety officials recommend changes that could be made. These include rule making and local control mechanisms that are part of the original concept.

These changes can be made in the historical context in that the original guiding document (E-911 Technical report, 1992) can be used for direction. Of most importance, is that the state law (RSA 106-H) should be complied with. If this occurred the problems with the current system would vanish.

DISCUSSION

The survey which was prepared for this applied research project was used to evaluate how public safety officials perceive the current E-911 system in New Hampshire. The response of the public safety officials is important to this applied research project to determine if the original plans for the E-911 system have been met.

Historical research as to the development of the system, current operations of the system, and national guidelines was conducted to guide this project. The literature review provided the basic framework for this research. The E-911 technical committee report (1992) is the guiding document for the system in New Hampshire. This report outlines how the system should be established and operated. This report was used as a guide to enact the state law (RSA 106-H) that concerned the 911 system. The information contained in this report, and the resulting state law, described what the system would be to the public safety community as well as the citizens of the state.

While the public safety community in the state is comfortable with the system overall, they do have concerns about certain operations (Appendix A). These concerns are concentrated on the system beginning call coding and medical dispatch. The survey shows that public safety officials are not in favor of these new operations.

The system was to be merely an emergency call transfer point that relayed 911 calls to local dispatch centers (E-911 Technical Report, 1992). Emergency medical dispatching and call coding are services that should be provided locally. Local dispatch is

important in that response equipment, personnel, and procedures are guided by medical control, with follow up quality assurance (Clawson/Martin, 1995). A statewide system, such as the one in New Hampshire cannot provide the same response and quality assurance as the local center.

This historical background of the New Hampshire E-911 system shows that the operations should be limited to call transfer to local dispatch centers. In addition, local dispatch centers were to receive important technology related to automatic addressing information (RSA 106-H:11). The changes to the system violate these basic requirements and in large part, are the cause for uneasiness on the part of public safety officials.

RECOMMENDATIONS

After review of the historical information as well as the evaluative survey, it is obvious that changes should be made to the E-911 system in New Hampshire. The original concept for this system was for a centralized 911 call transfer point that would provide technology to local dispatch centers (E-911 Technical Report, 1992). By doing this, the system operates as a statewide agency with local control. Local dispatch centers are then free to operate under local guidelines, much like other states with a statewide system (Holt, 1990).

If changes are to be proposed to the system, such as enhanced capability, they should be made through the proper system outlined in the law (RSA 106-H:7). The statute provides that the rule making process be used whenever changes are made to the system.

The recommendations of this applied research project are that (1) the E-911 system follow state law and cease the call coding and medical dispatch functions, and (2) that the system provide automatic addressing information to local dispatch centers, and (3) to begin a process of communications with public safety officials to reach consensus as to the future operations of the system, and further (4) to propose administrative rules that outline the operations of the enhanced 911 system in New Hampshire.

REFERENCE LIST

Clawson, J. & Hauert, S. (1995). Dispatch life support: Establishing standards that work. In J. J. Fitch (Ed.) *Pre-hospital Care Administration* (pp. 198-202). St Louis MO: Mosby Yearbook, inc

Clawson, J. & Martin, R. (1995). Modern priority dispatch. In J. J. Fitch (Ed.) *Pre-hospital Care Administration* (pp.203-211). St. Louis MO: Mosby Yearbook, inc

Enhanced 911 Act, NH Revised Stat. Ann. 106-H (1992)

Holt, F. X. (1990, November). State of the art communications: Rhode Island's statewide enhanced 911 system. *Fire Engineering*,143, 33-39

Holt, F. X. (1991, December). Planning an enhanced 911 system. *Fire Engineering*,144, 33-37

Klunk, S. (1997, December 2). E-911 plan under fire, state designs call coding. *Portsmouth Herald*. Pp. A1, A12

- Klunk, S. (1997, December 4). Local officials say they won't use call coding.
Portsmouth Herald. Pp. A1, A15
- Morentz, J.W. (1994, January/February). The ABC's of enhanced 911, CAD, and EIS.
Hazard Technology, XIV, 10-12
- New Hampshire Enhanced 911 Technical Committee. (1992). *New Hampshire Enhanced 911 Technical Committee Report*. Concord NH: Author
- Zeller, R. & Yameen, J. (1992, May). EMD in the fire service. *Fire Chief*, 36, 46-51

APPENDIX A

SURVEY OF PUBLIC SAFETY OFFICIALS

1. Are you familiar with the original conceptual plan for E-911 in New Hampshire

Yes 77 (79%) No 20 (20%)

2. Are you familiar with the current operations of the E-911 system in New Hampshire ?

Yes 65 (66%) No 32 (33%)

3. Based upon your initial concept of E-911 in NH, do you feel that the current operations fit with your initial concept ? Yes 40 (41%) No 57 (58%)

4. If not, what operations are different ?

Confusing system 3 (3%)

No Local Control 57 (58%)

EMD & Call Coding 57 (58%)

Lack of communication 55 (57%)

Expanded Role 54 (56%)

5. Are you satisfied that the E-911 system enhances your organizational capabilities ?

Yes 58 (59%) No 39 (40%)

6. What changes could be made to the system to ensure operational and legislative requirements are met ?

Rule Making Process 53 (54%)

Transfer calls only 50 (51%)

Change law to include additional services 32 (32%)

Enforce existing law and intent 60 (61%)

Expand role of E-911 to include dispatch service 3 (3%)

7. If a proposal was made to centralize emergency dispatching, would you be :

Opposed 84 (86%) In favor 13 (13%)

8. Does the E-911 system in New Hampshire serve the needs of the citizens ?

Yes 60 (61%) No 37 (38%)